UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,529	03/02/2005	Shridhar Mubaraq Mishra	1890-0205	5346

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EXAMINER
ELPENORD, CANDAL

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2008*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-28* is/are pending in the application.
     4a) Of the above claim(s) *12,13,15,16,19 and 22* is/are withdrawn from consideration.
5)☒ Claim(s) *9-11 and 14* is/are allowed.
6)☒ Claim(s) *17,18,20,21 and 23-28* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *March 02, 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☐ All   b)☐ Some * c)☐ None of:
       1.☐ Certified copies of the priority documents have been received.
       2.☐ Certified copies of the priority documents have been received in Application No. _____.
       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20090223

Response to Arguments

1.   Applicant's arguments filed December 02, 2008 have been fully considered but they are not persuasive.

2.   The Applicants alleged that the combination of Bonomi '492 and Bass '471 fail to teach or suggest the claimed features: regarding claim 17, "triggering a broadcast storm control mode in which broadcast storm control is performed before the data packets are queued in ht at lease one ingress queue if the measure of the length of the at lease one ingress queue rises above a first predetermined level", regarding claim 25, deleting at least some of the broadcast packets before admission to the ingress queue if the measure of the at least one ingress queue rises above a first predetermined level".

        In response, the Examiner respectfully disagrees with the Applicant's assertions because the combination when considered as whole does in fact teach the Applicant claimed invention as broadly interpreted.

        Bonomi '492 in particular discloses determining the length of a queue at each respective port prior to storing or accepting the incoming data (col. 4, lines 11-15), a counter indicating the length of a queue and thresholds of a queue (col. 5, lines 1-6, col. 5, lines 62-65).

        Bass '471 from the same field of endeavor discloses the broadcast storm control (noted: broadcast storms suppression when the class count of received messages has exceeded a threshold level, col. 5, lines 5, lines 34-65), noted: suppressing of message storms by discarding of the messages, col. 3, lines 30-39, col. 6, lines 29-38, noted: preventing the transmission of broadcast messages for particular class if the class

counts reaches the predetermined threshold, col. 5, lines 33-58, noted: buffer overrun in

the form of broadcast storms when multiple broadcast messages are being generated,

col. 1, lines 25-43.

In view of the above reasons, it would have been obvious to one skilled in the art

at the time the invention was made to modify the teachings of Bonomi '492 by

incorporating teaching features as taught by Bass '471 to arrive at the Applicant claimed

invention. The motivation would have been to measure and prevent broadcast storm

based on the length, size, and level, capacity of the buffer or queue.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

5.   **Claims 17-18, 20-24** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bonomi et al (US 6,292,492 B1) in view of Bass et al (US 587,471 B1).

Regarding claim 17, Bonomi '492 discloses a method of operating a data switch ("switch using memory to buffer multicast cells", recited in col. 3, lines 48-63 and fig. 1, Switching arrangement, recited in col. 6, lines 52-61) having at least one of ingress ports (fig. 2, Input ports 210-A-210-C, recited in col. 7, lines 35-42) and a plurality of egress ports (fig. 2, Output Ports 230-A-230-C, recited in col. 7, lines 35-42) connected by a switching fabric (fig. 1, switching elements, recited in col. 6, lines 52-56 and "end-system switches", recited in col. 7, lines 1-12) , the switch (fig. 1, Switching arrangement, recited in col. 6, lines 52-61) having the at least one ingress of queues (fig. 2, Queue 250 or plurality of queues 220-A-220-Z, recited in col. 7, lines 43-53) for queuing data derived from data packets ("buffered of cells", recited in col. 3, lines 48-52 and col. 7, lines 35-42) arriving at the ingress ports (fig. 2, Queue 250 or plurality of queues 220-A-220-Z, recited in col. 7, lines 43-53, Ingress Ports 210-210-C) , the method comprising: deriving a measure ("traffic manager keeping track per connection of queue length", recited in col. 4, lines 9-15) of a length of the at least one of the queues ("queue length of connections", recited in col. 5, lines 62-67).

Regarding claim 18, Bonomi '492 discloses the method wherein there are a plurality of ingress ports (fig. 2, Input ports 210-A-210-C, recited in col. 7, lines 35-42) and ingress queues (fig. 2, Queue 250 or plurality of queues 220-A-220-Z, recited in col. 7, lines 43-53) and the measure of a length of the longest of the ingress queues ("longest branch queue", recited in col. 16, lines 38-59 and "congestion levels and increment of aggregate memory", recited in col. 16, lines 54-64) is used to obtain the measure of at least one ingress queue (noted: the traffic manager keeping track fro

each respective port queue length, col. 4, lines 11-15, col. 5, lines 1-4, col. 5, lines 63-65).

Regarding claim 24, Bonomi '492 discloses the method wherein there are a plurality of ingress ports (fig. 2, Input ports 210-A-210-C, recited in col. 7, lines 35-42) and ingress queues (fig. 2, Queue 250 or plurality of queues 220-A-220-Z, recited in col. 7, lines 43-53) and the length ("queue length of connections", recited in col. 5, lines 62-67) of each of the plurality of ingress queues is summed to obtain the measure of the length of the at least one ingress queue ("sum of total memory storage and total memory space used by connections", recited in col. 11, lines 41-48 and col. 12, lines 3-7).

Regarding claim 17, a method of operating a data switch having at least one plurality of ingress ports and a plurality of egress ports connected by a switching fabric, the switch having at least one plurality of ingress queues for queuing data derived from data packets arriving at the ingress ports, the method comprising: deriving a measure of a length of the at least one queue and triggering a broadcast storm control mode in which broadcast storm control is performed before the data packets are queued in the at least one ingress queue according the measure of the length of the at least one ingress queue rises above a first predetermined level measure.

Bonomi '492 discloses all the claimed limitations with the exception of being silent with respect to claimed features:

Regarding claim 17, triggering a broadcast storm control mode in which broadcast storm control is performed before the data packets are queued in the at least one ingress queue according the measure of the length of the at least one ingress queue rises above a first predetermined level measure.

Regarding claim 20, the method, wherein the broadcast storm control is performed by deleting at least some of the broadcast packets.

Regarding claim 21, the method, further including a step of ceasing to delete packets when the measure of the length of the at least one ingress queue falls below a second predetermined level.

Regarding claim 23, the method, wherein the broadcast storm control is performed by deleting at least some of the broadcast packets.

However, Bass '471 from the same field of endeavor discloses the above claimed features:

Regarding claim 17, triggering a broadcast storm control mode (Noted: broadcast storms suppression when the class count of received messages has exceeded a threshold level, col. 5, lines 5, lines 34-65) in which broadcast storm control is performed before the data packets are queued in the at least one ingress queue according the measure of the length of the at least one ingress queue rises above a first predetermined level measure (noted: suppressing of message storms by discarding of the messages, col. 3, lines 30-39, col. 6, lines 29-38, noted: preventing the transmission of broadcast messages for particular class if the class counts reaches the predetermined threshold, col. 5, lines 33-58, noted: buffer overrun in the form of

broadcast storms when multiple broadcast messages are being generated, col. 1, lines
25-43).

Regarding claim 20, the method, wherein the broadcast storm control is

performed by deleting at least some of the broadcast packets (noted: selective

discarding of broadcast messages if the threshold of the class count of the messages

has exceeded the predetermined level, col. 3, lines 36-40).

Regarding claim 21, the method, further including a step of ceasing to delete

packets when the measure of the length of the at least one ingress queue falls below a

second predetermined level(noted: buffer overrun in the form of broadcast storms when

multiple broadcast messages are being generated, col. 1, lines 25-43, noted:

processing of the packets normally when the class count of the broadcast messages

with respect to the thresholds not exceeding the predetermined levels, col. 7, lines 17-

28, col. 8, lines 1-8).

Regarding claim 23, the method, wherein the broadcast storm control is

performed by deleting at least some of the broadcast packets(noted: selective

discarding of broadcast messages if the threshold of the class count of the messages

has exceeded the predetermined level, col. 3, lines 36-40).

In view of the above, having the method for buffering multicast and unicast cells

of multicast connections and determining the length of a respective queue of Bonomi

"492, and the well-established teaching for suppressing broadcast storms in computer

network of Bass '471, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to modify the features of Bonomi '492 by incorporating

the teaching features of Bass '471 in order to provide selective suppression of broadcast storms as suggested in col. 2, lines 29-42.

6.   **Claims 25-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonomi et al (US 6,292,492 B1) in view of Bass et al (US 6,587,471 B1).

Regarding claim 25, Bonomi '492 discloses a method of operating a data switch ("switch using memory to buffer multicast cells", recited in col. 3, lines 48-63 and fig. 1, Switching arrangement, recited in col. 6, lines 52-61) having at least one of ingress ports (fig. 2, Input ports 210-A-210-C, recited in col. 7, lines 35-42) and a plurality of egress ports (fig. 2, Output Ports 230-A-230-C, recited in col. 7, lines 35-42) connected by a switching fabric (fig. 1, switching elements, recited in col. 6, lines 52-56 and "end-system switches", recited in col. 7, lines 1-12), the switch having a plurality of ingress queues (fig. 2, Queue 250 or plurality of queues 220-A-220-Z, recited in col. 7, lines 43-53) for queuing data derived from data packets ("buffered cells", recited in col. 3, lines 48-52 and col. 7, lines 35-42) arriving at the ingress ports (fig. 2, Input ports 210-A-210-C, recited in col. 7, lines 35-42), the method comprising: a) deriving a measure ("traffic manager keeping track of connection of queue length", recited in col. 4, lines 9-15) of a length of the at least one queue ("queue length of connections", recited in col. 5, lines 62-67).

Regarding claim 26, Bonomi '492 discloses the method wherein there are a plurality of ingress port (fig. 2, Input ports 210-A-210-C, recited in col. 7, lines 35-42) and ingress queues (fig. 2, Queue 250 or plurality of queues 220-A-220-Z, recited in col.

7, lines 43-53) and the length of the longest of the plurality of ingress queues is used as the length of the at least one ingress queue ("longest branch queue", recited in col. 16, lines 38-59).

Bonomi '492 discloses all the claimed limitations with the exception of being silent with respect to claimed features:

Regarding claims 25, deleting at least some of the broadcast packets before admission to the ingress queue if the measure of the length of the at least one ingress queue rises above a first predetermined level measure.

Regarding claim 27, the method further including a step of ceasing to delete packets when the measure of the length of the at least one ingress queue falls below a predetermined level.

Regarding claim 28, the method, further including a step of ceasing to delete packets when the measure of the length of the at least one ingress queue falls below a predetermined level.

However, Bass '471 from the same field of endeavor discloses the above claimed features:

Regarding claims 25, deleting at least some of the broadcast packets before admission to the ingress queue (noted: suppressing of message storms by discarding of the messages, col. 3, lines 30-39, col. 6, lines 29-38, noted: preventing the transmission of broadcast messages for particular class if the class counts reaches the predetermined threshold, col. 5, lines 33-58) if the measure of the length of the at least one ingress queue rises above a first predetermined level measure (noted: buffer

overrun in the form of broadcast storms when multiple broadcast messages are being

generated, col. 1, lines 25-43).

Regarding claim 27, the method further including a step of ceasing to delete

packets when the measure of the length of the at least one ingress queue falls below a

predetermined level (noted: buffer overrun in the form of broadcast storms when

multiple broadcast messages are being generated, col. 1, lines 25-43, noted:

processing of the packets normally when the class count of the broadcast messages is

not respect the thresholds not exceeding the predetermined levels, col. 7, lines 17-28,

col. 8, lines 1-8).

Regarding claim 28, the method, further including a step of ceasing to delete

packets when the measure of the length of the at least one ingress queue falls below a

predetermined level (noted: buffer overrun in the form of broadcast storms when

multiple broadcast messages are being generated, col. 1, lines 25-43, noted:

processing of the packets normally when the class count of the broadcast messages do

not reach the thresholds or not exceeding the predetermined levels, col. 7, lines 17-28,

col. 8, lines 1-8).

In view of the above, having the method for buffering multicast and unicast cells

of multicast connections and determining the length of a respective queue of Bonomi

"492, and the well-established teaching for suppressing broadcast storms in computer

network of Bass '471, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to modify the features of Bonomi '492 by incorporating

the teaching features of Bass '471 in order to provide selective suppression of

broadcast storms as suggested in col. 2, lines 29-42.

Allowable Subject Matter

7.   Claims 9-11, 14 are allowed.

The prior arts of record either singularly or in combination fail to teach or suggest

a broadcast packet control unit having a broadcast storm control mode in which the

broadcast packet control unit performs a broadcast storm control operation, the

broadcast packet control unit configured to operate in broadcast storm control mode if

the obtained measure of the length of the al least one ingress queue rises above a first

predetermined level before the data packets are queued in the at least one ingress

queue, wherein the broadcast packet control unit is configured to only admit broadcast

packets to the at least one ingress queue when not in broadcast storm control mode.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Valdevit et al (US 5,636,345), Dell et al (US 2002/0136230 A1),

Lai et al (US 6,851,000 B2) and Kesavan et al (US 2004/0062200 A1).

9.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CANDAL ELPENORD whose telephone number is

(571)270-3123. The examiner can normally be reached on Monday through Friday

7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Candal Elpenord/

Examiner, Art Unit 2416

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2416